PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 51043-3	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/CA2004/002156	International filing date *(day/month/year)* 17 December 2004 (17-12-2004)	Priority date *(day/month/year)* 18 December 2003 (18-12-2003)

International Patent Classification (IPC) or national classification and IPC
IPC: ***C12N 15/53*** (2006.01) , ***C12P 7/64*** (2006.01) , ***C12N 15/82*** (2006.01) , ***C12N 15/31*** (2006.01) , ***C12N 9/02*** (2006.01) , ***C12N 5/10*** (2006.01), ***C07K 14/195*** (2006.01) , ***A01H 5/00*** (2006.01)

Applicant
ALBERTA RESEARCH COUNCIL INC. ET AL

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

   a. [X] *(sent to the applicant and to the International Bureau)* a total of 9 sheets, as follows:

      [X] sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

      [ ] sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. 1 and the Supplemental Box.

   b. [ ] *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

   [X] Box No. I Basis of the report
   [ ] Box No. II Priority
   [X] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   [ ] Box No. IV Lack of unity of invention
   [X] Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   [ ] Box No. VI Certain documents cited
   [ ] Box No. VII Certain defects in the international application
   [X] Box No. VIII Certain observations on the international application

Date of submission of the demand 18 October 2005 (18-10-2005)	Date of completion of this report 27 April 2006 (27-04-2006)
Name and mailing address of the IPEA/CA Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001(819)953-2476	Authorized officer Michael W. De Vouge (819) 997-2952

Form PCT/IPEA/409 (cover sheet) (April 2005)

Box No. I Basis of the report

1. With regard to the **language,** this report is based on:

[X] the international application in the language in which it was filed

[ ] a translation of the international application into , which is the language of a translation furnished for the purposes of:

[ ] international search (Rules 12.3(a) and 23.1(b))

[ ] publication of the international application (Rule 12.4(a))

[ ] international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

[ ] the international application as originally filed/furnished

[X] the description:

[X] pages	1, 2, 4-7, 9-26, 28	as originally filed/furnished	
[X] pages*	3, 8, 27	received by this Authority on	7 April 2006
[ ] pages*		received by this Authority on	

[X] the claims:

[ ] pages		as originally filed/furnished	
[ ] pages*		as amended (together with any statement) under Article 19	
[X] pages*	29	received by this Authority on	18 October 2005
[X] pages*	30-34	received by this Authority on	7 April 2006

[ ] the drawings:

[ ] pages		as originally filed/furnished	
[ ] pages*		received by this Authority on	
[ ] pages*		received by this Authority on	

[X] a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. [ ] The amendments have resulted in the cancellation of:

[ ] the description, pages

[ ] the claims, Nos.

[ ] the drawings, sheets/figs

[ ] the sequence listing *(specify):*

[ ] any table(s) related to sequence listing *(specify):*

4. [ ] This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

[ ] the description, pages

[ ] the claims, Nos.

[ ] the drawings, sheets/figs

[ ] the sequence listing *(specify):*

[ ] any table(s) related to sequence listing *(specify):*

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The question whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

[ ] the entire international application

[X] claims Nos. 1-6, 11, 13-36

because:

[ ] the said international application, or the said claims Nos.
relate to the following subject matter which does not require an international preliminary examination *(specify):*

[X] the description, claims or drawings *(indicate particular elements below)* or said claims Nos. 1-6, 11, 13-36
are so unclear that no meaningful opinion could be formed *(specify):*

- as explained in **Supplemental Box**

[ ] the claims, or said claims Nos. are so inadequately supported
by the description that no meaningful opinion could be formed *(specify):*

[ ] no international search report has been established for said claims Nos.

[ ] a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:

[ ] furnish a sequence listing on paper complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Preliminary Examining Authority in a form and manner acceptable to it.

[ ] furnish a sequence listing in electronic form complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Preliminary Examining Authority in a form and manner acceptable to it.

[ ] pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rules 13*ter*.1(a) or (b) and 13*ter*.2.

[ ] a meaningful opinion could not be formed without the tables related to the sequence listings; the applicant did not, within the prescribed time limit, furnish such tables in electronic form complying with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions, and such tables were not available to the International Preliminary Examining Authority in a form and manner acceptable to it.

[ ] the tables related to the nucleotide and/or amino acid sequence listing, if in electronic form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

[X] See Supplemental Box for further details.

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-36	YES
	Claims	None	NO
Inventive step (IS)	Claims	1-36	YES
	Claims	None	NO
Industrial applicability (IA)	Claims	1-36	YES
	Claims	None	NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents cited in the International Search Report (ISR):
D1: US 5663068 A (RHONE POULENC AGROCHIMIE (FR)) 2 September 1997
D2: US 6043411 A (KIRIN BEER KABUSHIKI KAISHA (JP)) 28 March 2000
D3: US 20030054521 A1 (BOOTH et al (US)) 20 March 2003

With regard to novelty:

Claims 1-36 are held to meet the requirements of Article 33(2) PCT for novelty, as no single prior art document discloses a delta-9 desaturase derived from a prokaryotic organism, that has been engineered for expression in plants by addition of an endoplasmic reticulum retention signal peptide.

With regard to inventive step:

The instant application is considered to address the problem of engineering plants to produce reduced levels of saturated fatty acids in seed oils therefrom. This is achieved by the engineering of a prokaryotic delta-9 desaturase from *Anacystis nidulans* with a carboxy-terminal endoplasmic reticulum (ER) retention signal, and expression of this construct in plants.

Document D2 cited in the ISR is considered to be the closest example of prior art, in that it discloses the sequence of delta-9 desaturase from the cyanobacterium *Anacystis nidulans*, as admitted by the Applicant at p.8 of the instant description and referred to in said description as SEQ ID NO:2. In document D2, the enzyme was engineered for expression in tobacco by operable linkage to a RuBisCO peptide enabling its targeting to plastids, thereby improving chilling resistance. However, this document does not disclose the use of a retention peptide to specifically localize the expressed enzyme to the ER.

Document D1 discloses the engineering of a delta-6 desaturase enzyme from cyanobacteria for expression and retention in the endoplasmic reticulum of plants by addition of a KDEL retention signal. Such expression of delta-6 desaturase imparted cold-tolerant properties on transformed cells and transgenic plants grown therefrom. Nucleic acid molecules, vectors for such nucleic acid molecules, host cells, transgenic plants and methods for producing such plants are disclosed. However, this document does not consider engineering of delta-9 desaturase. In response to the Written Opinion of the International Search Authority, Applicant has also argued in the letter of 18 October 2005 that this document altogether fails to address the problem of reducing saturated fatty acid content in plants, as delta-6 desaturase catalyzes conversion of linoleic acid, an unsaturated fatty acid, to γ-linolenic acid.

...continued in **Supplemental Box**

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 1-6, 11 and 13-36 encompass products that are not defined in terms of clear and/or distinguishing technical feature(s) as required under Article 6 of the PCT. The application provides support within the meaning of Article 6 PCT for only a limited number of the products. Specifically, the recitation of functional attributes (an endoplasmic reticulum and retrieval signal sequence) rather than actual sequence for claimed polypeptides and polynucleotides encoded therefrom render it impossible to undertake a meaningful search over their entire scope. With regard to the products and methods of claims 13-36, embodiments dependent on the nucleic acid of claim 11 also ultimately depend on the functionally-defined attributes of polypeptides of claims 1-6.

Claims 1-6 and 11 do not comply with Article 6 of the PCT. Polypeptides and nucleic acids are types of chemical compounds and therefore should be defined in the same manner as any other chemical compound, i.e., in terms of its structural formula, ie by nucleotide sequence or amino acid sequence, in terms of the process by which it is made, or in terms of physical or chemical properties which serve to uniquely and unambiguously distinguish the polypeptide or nucleic acid from all other chemical compounds. With regard to claims 5 and 6, the inventive aspect lies within the combination of structural elements that make up the novel polypeptide, thus necessitating recitation of the complete polypeptide sequence.

The description does not comply with Article 5 of the PCT. The statements found on page 8, line 24 and page 18, lines 9-13 which incorporate by reference another document, do not comply with Article 5 of the PCT. The description should be complete in and of itself. A person skilled in the art should be able to understand the patent specification without reference to any other document.

The following minor corrections are required:
the reference to the document *in press* on page 11, lines 6-12 should be corrected to reflect the document citation at page 27 line 8 as amended on 7 April 2006;
the reference to the United States patent on page 28, line 18 should be corrected to reflect the document citation at page 3 line 8 as amended on 7 April 2006.

Supplemental Box relating to Sequence Listing

Continuation of Box I, item 2:

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this report was established on the basis of:

   a. type of material

      [X] a sequence listing

      [ ] table(s) related to the sequence listing

   b. format of material

      [X] on paper

      [X] in electronic form

   c. time of filing/furnishing

      [X] contained in the international application as filed

      [X] filed together with the international application in electronic form

      [ ] furnished subsequently to this Authority for the purposes of search and/or examination

      [ ] received by this Authority as an amendment* on

2. [ ] In addition, in the case that move than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

* *If item 4 in Box No. 1 applies, the listing and/or table(s) related thereto, which form part of the basis of the report, may be marked "superseded".*

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**

Continuation of: **Box III**

Claims 1-6, 11 and 13-36 encompass products that are not defined in terms of clear and/or distinguishing technical feature(s) as required under Article 6 of the PCT. The application provides support within the meaning of Article 6 PCT for only a limited number of the products. Specifically, the recitation of functional attributes (an endoplasmic reticulum and retrieval signal sequence) rather than actual sequence for claimed polypeptides and polynucleotides encoded therefrom render it impossible to undertake a meaningful search over their entire scope. With regard to the products and methods of claims 13-36, embodiments dependent on the nucleic acid of claim 11 also ultimately depend on the functionally-defined attributes of polypeptides of claims 1-6. Consequently, the search has been established for the parts of the application which appear to be clear and/or supported, namely SEQ ID NO:2, modified by addition of any of the retention signals recited in claims 7 and 8.

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**

Continuation of: **Box V**

Document D3 discloses the engineering of eukaryotic stearoyl acyl carrier protein (ACP) to produce derivative genes that may be expressed in plants. The expression of these variants resulted in the production of oils having enhanced unsaturated fatty acid content. Although the description indicates at paragraph 0069 that retention of an engineered enzyme to endoplasmic reticulum may be achieved by adding a 3'-terminal retention signal peptide to the enzyme, Applicant has argued in response to the Written Opinion of the International Search Authority, that the approach used in document D3 would serve to alter the profile of fatty acid production but would not reduce overall saturated fatty acid content in seed oils. Additionally, that there is no indication in document D3 that this approach would succeed with a prokaryotic delta-9 desaturase and suggests that document D3 would teach away from the use of a prokaryotic desaturase.

In view of Applicant's persuasive arguments , claims 1-36 are held to meet the requirements of Article 33(3) PCT for inventive step.

With regard to industrial applicability:

Claims 1-36 are held to meet the requirements of Article 33(4) PCT for industrial applicability.

It has been shown previously that the nutritional value of plant seed oil can be improved by making transgenic plants that express a heterologous delta-6 desaturase enzyme (derived from cyanobacteria, borage, or evening primrose) to effect the conversion of linoleic acid ($C_{18}\Delta^{9,12}$), a polyunsaturated fatty acid, to gamma-linolenic acid (GLA, $C_{18}\Delta^{6,9,12}$) (see U.S. patent Nos.: 5552306; 5614393; 5663068; 5689050; 5789220; 6355861; 6683232; and US patent application publication No.: 20040078845). Linoleic acid ($C_{18}\Delta^{9,12}$) is an essential dietary constituent that cannot be synthesized by vertebrates and is usually obtained from plant sources; vertebrate cells can introduce double bonds at the delta-9 position of fatty acids but cannot introduce additional double bonds between the delta-9 double bond and the methyl-terminus of the fatty acid chain. Linoleic acid can be converted by mammals to gamma-linolenic acid (GLA, $C_{18}\Delta^{6,9,12}$), which in turn can be converted to arachidonic acid (20:4), an essential precursor of most prostaglandins.

Accordingly, there remains a need for transgenic plants that can provide seed oil having lower levels of saturated fatty acids.

SUMMARY OF THE INVENTION

The present invention provides molecular technology for reducing the levels of saturated fatty acids in seed oil produced by a plant. Specifically, the present molecular technology expresses in a plant an enzyme having delta-9 desaturase activity (i.e. that desaturates fatty acids at the delta-9 position) at a level effective for reducing the saturated fatty acid content in the seed oil produced by the plant.

manipulated using genetic engineering, i.e. by human intervention. Recombinant nucleic acid constructs may for example be introduced into a host cell by transformation. Such recombinant nucleic acid constructs may include sequences derived from the same host cell species or from different host cell species, which have been isolated and reintroduced into cells of the host species. Recombinant nucleic acid construct sequences may become integrated into a host cell genome, either as a result of the original transformation of the host cells, or as the result of subsequent recombination and/or repair events.

DELTA-9 DESATURASE ENZYMES

The delta-9 desaturase enzyme used in the present examples is from *Anacystis nidulans*, a cyanobacterium (U.S. Patent No. 6,043,411 to Nishizawa et al. 1996) and has the amino acid sequence set forth in SEQ ID NO:2. This protein introduces a *cis*-double bond (or desaturation) at the delta-9 position of saturated fatty acids bound to lipids. It has higher specificity for 16:0 fatty acids but also desaturates larger saturated fatty acids, such as 18:0. This protein is described in detail in U.S. Pat. No. 6,043,411 to Nishizawa et al.; in Nature Biotechnology 14: 1003-1006 and registered in EMBL GeneBank as accession number X77367, all of which references are incorporated herein by reference. The gene encoding this desaturase is referred to herein as the "*des9* gene (SEQ ID NO:1) from *Anacystis nidulans*" but is sometimes referred to in the art as the DSG gene.

Delta-9 desaturase enzymes from other prokaryotic sources can be used in the present invention. For example, suitable prokaryotic sources of delta-9 desaturase enzymes

Plant Molecular Biology Manual, A5/1-A5/9. Kluwer Academic Publishers, Dordrecht/Boston/London.

Lehmann K. et al. (2001) Plant Physiol. Oct;127(2):436-49.

Manabu Murakami, Takayoshi Ohba, Feng Xu, Seiji Shida, Eisaku Satoh, Kyoichi Ono, Ichiro Miyoshi, Hiroyuki Watanabe, Hiroshi Ito, and Toshihiko Iijima (2005) "Genomic organization and functional analysis of murine PKD2L1" J. Biol. Chem. 280(7): 5626-35.

Michaelis et al. (1982) Ann. Rev. Microbiol. 36, 425.

Moloney M, Walker JM and Sharma KK 1989 High efficiency transformation of Brassica napus using Agrobacterium vectors, Plant Cell Rep. 8, 238-242.

Nishizawa O, Toguri T (1996) Gene for fatty acid desaturase, vector containing said gene, plant transformed with said gene, and process for creating said plant. U.S. patent number 6,043,411.

Nishizawa O, Fujii T, Azuma M, Sekiguchi K, Murata N, Ohtani T, Toguri T (1996) Low-temperature resistance of higher plants is significantly enhanced by a nonspecific cyanobacterial desaturase. Nature Biotechnology 14: 1003-1006.

Sambrook, J., E.F. Fritsch, and T. Maniatis, 1989. Molecular Cloning: A Laboratory Manual. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, N.Y.

Schardl C.L., A.D. Byrd, G. Benzion, M.A. Altschuler, D.F. Hildebrand and A.G. Hunt, 1987. Design and construction of a

CLAIMS:

1. A recombinant polypeptide comprising a delta-9 desaturase enzyme from a prokaryote in operable linkage with an endoplasmic reticulum retention and retrieval signal sequence.

2. The recombinant polypeptide of claim 1, wherein said prokaryote is a bacterium.

3. The recombinant polypeptide of claim 1, wherein said prokaryote is a cyanobacteria blue-green alga belonging to a genus selected from the group consisting of Anacystis, Synechocystis, and Anabaena.

4. The recombinant polypeptide of claim 3, wherein said cyanobacteria is *Anacystis nidulans*.

5. The recombinant polypeptide of claim 1, wherein said delta-9 desaturase enzyme comprises:

(a) a polypeptide having the amino acid sequence set forth in SEQ ID NO:2;

(b) a variant or homologue of the polypeptide defined in (a) having at least 50%, 60%, 70%, 75%, 80%, 85%, 90%, or 95% identity thereto and having delta-9 desaturase activity; or

(c) a fragment of the polypeptide defined in (a) having at least about 50 contiguous amino acids identical thereto and having delta-9 desaturase activity.

6. The recombinant polypeptide of claim 1, wherein said delta-9 desaturase has the amino acid sequence set forth in SEQ ID NO:2.

7. The recombinant polypeptide of any one of claims 1 to 4, wherein said endoplasmic reticulum membrane retention and retrieval signal has an amino acid sequence selected from the group consisting of:

(a) KDEL (SEQ ID NO:4);

(b) KKXX (SEQ ID NO:3), where X is any amino acid;

(c) HDEF (SEQ ID NO:6);

(d) KEEL (SEQ ID NO:7); and

(e) KDQL (SEQ ID NO:8).

8. The recombinant polypeptide of claim 7, wherein said endoplasmic reticulum membrane retention and retrieval signal has the amino acid sequence KKSS (SEQ ID NO:5).

9. The recombinant polypeptide of claim 5 or 6, wherein said endoplasmic reticulum membrane retention and retrieval signal has an amino acid sequence selected from the group consisting of:

(a) KDEL (SEQ ID NO:4);

(b) KKXX (SEQ ID NO:3), where X is any amino acid;

(c) HDEF (SEQ ID NO:6);

(d) KEEL (SEQ ID NO:7); and

(e) KDQL (SEQ ID NO:8).

10. The recombinant polypeptide of claim 9, wherein said endoplasmic reticulum membrane retention and retrieval signal has the amino acid sequence KKSS (SEQ ID NO:5).

11. A nucleic acid molecule encoding the recombinant polypeptide defined in any one of claims 1 to 8.

12. A nucleic acid molecule encoding the recombinant polypeptide defined in claim 9 or 10.

13. A vector comprising the nucleic acid molecule of claim 11 or 12 in operable linkage with a promoter.

14. A host cell transformed with the vector of claim 13.

15. The host cell of claim 14 that is derived from an oil seed plant.

16. The host cell of claim 15, wherein said oil seed plant is selected from the group consisting of canola, soybean, corn, peanut, sunflower, olive, palm, coconut, safflower, cottonseed, mustard, sesame, hemp, castor, avocado and flax.

17. The host cell of claim 15 wherein said oil seed plant is canola.

18. A transgenic plant cell comprising a transgenic element containing the nucleic acid molecule of claim 11 or 12 in operable linkage with a promoter which effects expression of the recombinant polypeptide in said transgenic plant cell.

19. The transgenic plant cell of claim 18 that is derived from an oil seed plant.

20. The transgenic plant cell of claim 19, wherein said oil seed plant is selected from the group consisting of canola, soybean, corn, peanut, sunflower, olive, palm, coconut, safflower, cottonseed, mustard, sesame, hemp, castor, avocado and flax.

21. The transgenic plant cell of claim 19, wherein said oil seed plant is canola.

22. A method of making a transgenic plant comprising:

(a) transforming a plant cell with the nucleic acid of claim 11 or 12, or a vector comprising such nucleic acid, wherein said nucleic acid is in operable linkage with a promoter which effects expression of the recombinant polypeptide in said plant cell; and

(b) regenerating a plant from the transformed plant cell produced in step (a).

23. The method of claim 22, wherein said plant cell is derived from an oil seed plant.

24. The method of claim 23, wherein said oil seed plant is selected from the group consisting of canola, soybean, corn, peanut, sunflower, olive, palm, coconut, safflower, cottonseed, mustard, sesame, hemp, castor, avocado and flax.

25. The method of claim 23, wherein said oil seed plant is canola.

26. A transgenic plant comprising a transgenic element containing the nucleic acid molecule of claim 11 or 12 in

operable linkage with a promoter which effects expression of the recombinant polypeptide in said transgenic plant.

27. The transgenic plant of claim 26 that is an oil seed plant.

28. The transgenic plant of claim 27, wherein said oil seed plant is selected from the group consisting of canola, soybean, corn, peanut, sunflower, olive, palm, coconut, safflower, cottonseed, mustard, sesame, hemp, castor, avocado and flax.

29. The transgenic plant of claim 27, wherein said oil seed plant is canola.

30. The transgenic plant of any one of claims 26 to 29 that produces oil having a reduced saturated fatty acid content as compared to a wild-type plant of the same species.

31. The transgenic plant of claim 30, wherein the saturated fatty acid content of said seed oil is reduced by about 10%, about 15%, about 20%, about 30%, about 40% about 50% or more as compared to said wild-type plant.

32. Use of the transgenic plant of any one of claims 26 to 31 for producing seed oil having a reduced saturated fatty acid content as compared to a wild-type plant of the same species.

33. The use of claim 32, wherein the saturated fatty acid content of said seed oil is reduced by about 10%, about 15%, about 20%, about 30%, about 40% about 50% or more as compared to said wild-type plant.

34. The use of claim 32, wherein said transgenic plant is canola.

35. The use of claim 34, wherein said seed oil has a saturated fatty acid content of less than about 7 mol %.

36. The use of claim 34, wherein said seed oil has a saturated fatty acid content of about 4.0% to about 4.5%.